Recall that for triangle ABC, the sine law states the following:

Given any triangle, we can use the sine law if we know:

* Two angles and any side (**AAS** or **ASA**) *or*
* Two sides and one angle opposite a given side (**SSA**)

Example:

Three students measure the height of a tower. Alice and Bob are 650 m apart and on opposite sides of the tower. A third student, Chris, at point C measures the angle of elevation to the tower top to be 260º. Alice and Bob have measured their angles of elevation to be 410º and 370º respectively. How far is Chis from Bob?



In the **SSA** situation multiple cases can arise. We can summarize as follows:

(Note that each triangle has a height of *h = b sinA*)

**If <A is acute, there are four cases to consider.**

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| **One Solution** | **One Solution** |
| **No Solutions** | **Two Solutions** |

**If <A is obtuse, there are two cases to consider.**

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| **One Solution** | **No Solution** |